MONTHLY WEATHER REVIEW.

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INTRODUCTION.

This REVIEW contains a general summary of the meteorological conditions which prevailed over the United States and Canada during July, 1886, based upon the reports from the regular and voluntary observers of the Signal Service and from co-operating state weather services.

Descriptions of the storms which occurred over the north Atlantic Ocean during the month are also given, and their approximate paths shown on chart i. In tracing the centres of the paths of these storms, data from the reports of one hundred and eighty-seven vessels have been used.

On chart i for this month are traced the paths of thirteen areas of low pressure; the average number for July during the last thirteen years being 9.0. The areas described as numbers v and xiii exhibited considerable energy in their passage over New England and the middle Atlantic states.

Chart number vii in this REVIEW shows the atmospheric conditions reported immediately preceding the occurrence of destructive tornadoes in Ohio during the night of the 13th.

Chart viii shows the atmospheric conditions attending the occurrence of thunder-storms on the 14th.

Icebergs were numerous during the month on the Banks of Newfoundland and in the trans-Atlantic track, through, and to the eastward of, the Strait of Belle Isle; many of them being of great size.

The mean atmospheric pressure for the month is generally below the normal, but the departures are small.

East of the Mississippi River the month has been colder than the average July. In the western half of the country the temperature is considerably in excess of the normal.

The most striking feature in connection with the meteorology of the month is the large deficiency of rainfall in all the central districts, producing in some states disastrous droughts, while along the coast of the south Atlantic states, especially in North Carolina and Florida, the monthly rainfall was unusually large, 21.12 inches falling at Wilmington, North Carolina, and 14.97 inches at Jacksonville, Florida.

In the preparation of this REVIEW the following data, received up to August 20, 1886, have been used, viz., the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and thirty-three Signal Service stations and twenty Canadian stations, as telegraphed to this office; one hundred and sixty-three monthly journals; one hundred and sixty-one monthly means from the former, and twenty monthly means from the latter; two hundred and seventy-seven monthly registers from voluntary observers; sixty-five monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs furnished by the publishers of "The New York Maritime Register;" monthly weather reports from the New England Meteorological Society, and from the local weather services of Alabama, Colorado, Dakota, Georgia, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, Ohio, and Tennessee; trustworthy newspaper extracts, and special reports.

ATMOSPHERIC PRESSURE.

[*Expressed in inches and hundredths.*]

The distribution of mean pressure for July, 1886, determined from the tri-daily telegraphic observations of the Signal Service, is shown by isobarometric lines on chart ii.

The mean atmospheric pressure for the month is greatest over the north Pacific coast region, where the average pressure is 30.00. Another area of comparative high pressure covers the south Atlantic coast, east Gulf states, and Florida, the average pressure for this section being 29.95, in Florida; at Cedar Keys and at Key West the mean pressure rises to 29.98. The area of minimum pressure covers the middle and southern plateau regions, and is enclosed by the isobar of 29.80; at one station within this area, Yuma, Arizona, the mean pressure for the month is only 29.73. Another area of low pressure is shown by the isobar of 29.85, and extends over northern Maine and the lower Saint Lawrence valley; one station, Father Point, Quebec, giving a monthly mean of 29.81.

The departures from the normal pressure are given in the table of miscellaneous meteorological data, and are also shown on chart iv by lines connecting stations of equal departure. The mean pressure for the month is generally below the normal, although the departures are nowhere very great, the largest deficiences occurring in the Gulf States and in Missouri and Tennessee. The largest departure within this area occurs at Vicksburg, Mississippi, where the mean pressure for the month is .11 below the normal. Along the Pacific coast the mean pressure is also below the normal, the deficiency averaging about .06, the largest departure, .08, occurring at Portland, Oregon. In Maine, the upper lake region, and in portions of the northern and middle slopes, the pressure is slightly in excess of the normal, averaging only about .01.

As compared with the mean pressure for the preceding month, June, 1886, an increase of from .01 to .05 occurs in the Gulf States, Texas, New Mexico, and Arizona. In Washington Territory, Oregon, Idaho, and Montana the mean pressure for the month is from .04 to .09 less than that of the preceding month.

BAROMETRIC RANGES.

The monthly barometric ranges at the various Signal Service stations are also given in the table of miscellaneous data. The greatest ranges occurred in Dakota, Minnesota, the Lake districts, and New England. In the southern districts the ranges were small.

The following are some of the extreme monthly ranges:

Greatest.	Inch.	Least.	Inch.
Bismarck, Dakota	0.73	Fort Davis, Texas	0.24
Fort Totten, Dakota	0.71	Fort Bidwell, California	0.24
Eastport, Maine	0.70	San Diego, California	0.26
Saint Vincent, Minnesota	0.69	Los Angeles, California	0.27
Moorhead, Minnesota	0.65	Fort Stockton, Texas	0.27
Fort Buford, Dakota	0.64	Frisco, Utah	0.27